# Homogeneous DNA Analysis

## U N I V E R S I T Y  O F  U T A H

### CENTER

This Center, in its second year, continued their innovative work to commercialize rapid "hands-off" DNA testing. In the past year the Center has demonstrated the feasibility of "repeat typing" (for genetics and identity testing), "sequencing", and transplant compatibility testing using their rapid, low cost methods. A new development is gene dosage assessment, such as a simple test for trisomy 21 that may replace more complicated cytogenetic analysis. These innovations have application in cancer testing, the diagnosis of inherited diseases, and rapid bioterrorism detection.

### TECHNOLOGY

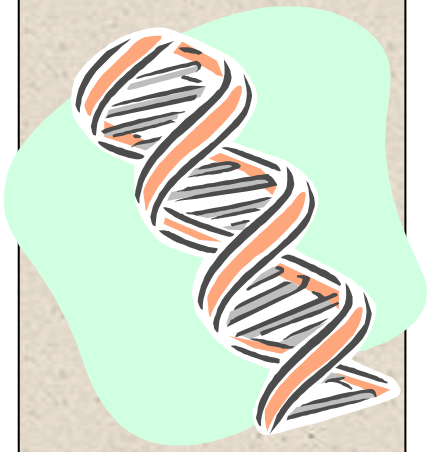
The central innovation of this Center involves High Resolution DNA melting analysis which is performed in solution, as in a test tube, in only 1-2 min without requiring any processing. This technique uses high-resolution, fluorescent melting analysis which means that a fluorescent dye, added before amplification via polymerase chain reaction (PCR), allows the melting transition of the PCR product to be continuously monitored. Ongoing work within the Center aims to apply it to new problems. Major new techniques this year include unlabeled probe genotyping, simultaneous mutation scanning and genotyping allele fraction assessment (more sensitive than sequencing), and "micro-melting" (scaling down 1000-fold to 10 nl samples).

### ACCOMPLISHMENTS

This year the feasibility of sequencing and repeat typing by melting was demonstrated, a blind clinical trial of transplant matching completed, and software tools for assay design and analysis have been developed. The Center's main licensee, Idaho Technologies, Inc. has launched two DNA melting instrument platforms based on the technologies, with both having very good early sales results. In addition, two Phase II STTRs are funded that directly result from Center technology at a value of $1.7M in research funds. The estimated total value of the benefit received to the State so far is just under $3M.

## THINK TANK

**What if there was a way to...**



**Know "on the spot" if a potential transplant organ was a genetic match, which dramatically reduces the risk of organ rejection.**

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